

Course Information

Course Staff	Room	Phone	Email	Office Hours
Prof. Sofya Raskhodnikova	IST 343F	x3-0608	sofya@cse.psu.edu	Tue 3–5pm
TA Peiyong Song	IST 343D	x3-7324	psong@cse.psu.edu	Tue 1–2pm, Fri 4–5pm

Webpage: <http://www.cse.psu.edu/~sofya/cse565>

Prerequisites: CSE 465 (Data Structures and Algorithms) or equivalent.

Lectures: MWF 11:15–12:05pm (Room 105 Rackley).

Textbook: Jon Kleinberg and Eva Tardos. *Algorithm Design*. Addison-Wesley. ISBN: 0-321-29535-8. <http://www.aw-bc.com/info/kleinberg/>

Goals: To know classical algorithms, be able to analyze correctness and complexity of a given algorithm and be able to design algorithms for new problems.

Syllabus: Classical algorithms; techniques for the design and analysis of efficient algorithms. Topics include graph algorithms; divide-and-conquer algorithms and recurrences; dynamic programming; greedy algorithms; amortized analysis; network flow; randomized and approximation algorithms.

Homework: There will be an assignment due every Wednesday before the lecture. The assignments will be posted one week in advance.

Late homework will generally not be accepted. If there are extenuating circumstances, you should make arrangements at least 48 hours in advance with the TA. Only serious excuses will be considered in cases where prior arrangements were not made.

You should be as clear and concise as possible in your write-up of solutions. Understandability of your answer is as desirable as correctness, because communication of technical material is an important skill. A simple, direct analysis is worth more points than a convoluted one, both because it is simpler and less prone to error and because it is easier to read and understand. Points might be subtracted for illegible handwriting and for solutions that are too long. Incorrect solutions will get from 0 to 30% of the grade, depending on how far they are from a working solution. Correct solutions with possibly minor flaws will get 70 to 100%, depending on the flaws and clarity of the write up.

“I go for 15%” option: Understanding whether a solution is correct is an important skill. If you realize that you cannot solve a problem, you have an option of writing “I go for 15%” instead of your answer. In this case, you will get 15% for this problem (or part of the problem). If you do write an answer, however, that answer will be graded and your score will be 0 if your solution is completely wrong.

Optional problems: Some homework assignments will include optional problems, marked by *. Later, if you ask me for a recommendation or express an interest in working on a research project with me, I will definitely check how well you did on the optional problems. *“I go for 15% option”* is not available for optional problems.

Official homework solution: Once or twice you will be asked to write the official homework solutions with a group of randomly selected students. Your group will meet with the instructor on the day the homework is due to discuss the solutions. You can distribute the work among the members of the group the way you like. Your solutions, written up in L^AT_EX, will be due two days later. The group will submit one file, and all members of the group will get the same grade for this assignment. The grade will depend on correctness and clarity of your write up, and on how much work it will need before I can post it (on Angel).

Collaboration and Honesty Policy: Collaboration on homework problems is permitted, but not encouraged. If you choose to collaborate on some problems, you are allowed to discuss each problem with at most 3 other students currently enrolled in the class. Before working with others on a problem, you should think about it yourself for at least 45 minutes. Finding answers to problems on the Web or from other outside sources (these include anyone not enrolled in the class) is strictly forbidden.

You must write up each problem solution by yourself without assistance, even if you collaborate with others to solve the problem. You must also identify your collaborators. If you did not work with anyone, you should write “Collaborators: none.” It is a violation of this policy to submit a problem solution that you cannot orally explain to an instructor or TA.

No collaboration whatsoever is permitted on exams.

Violations of this policy will be dealt with according to University regulations (see Senate Policy 49-20 on Academic Integrity).

Exams and Grading: The grade will be calculated as follows:

Homework	weekly	40%
Official solutions	once or twice	10%
Midterm 1	Fri, Sep 28, 8:15-10:15pm, 158 Willard	15%
Midterm 2	Fri, Nov 2, 8:15-10:15pm, 158 Willard	15%
Final exam	finals week	20%